

# PATENT SPECIFICATION

DRAWINGS ATTACHED

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**905,410**



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## COMPLETE SPECIFICATION

### Improvements relating to Shuttering for Casting Concrete and Supports therefor

We, SCAFFOLDING (GREAT BRITAIN) LIMITED, a British Company of Scafco Works, Willow Lane, Mitcham, in the County of Surrey, do hereby declare the invention for which  
5 we pray that a Patent may be granted to us and the method by which it is to be performed, to be particularly described in and by the following statement:—  
10 This invention relates to shuttering used for constructing overhead concrete work, such as floors, roofs, or beams and the invention concerns a modification of the invention forming the subject of our prior application No. 8894/58 (Serial No. 905,408) in which there  
15 is claimed shuttering for casting concrete comprising in combination, a support member and a shuttering member, the support member comprising a platform having means on its under-  
20 side for attaching it to the upper end of a vertical scaffolding member and having on its upper side a number of projections which are located at the corners of a square so as to define two grooves or channels extending across the upper surface of the platform and  
25 mutually at right angles, the shuttering member being of square or rectangular form with downwardly extending peripheral flanges, the portions of such peripheral flanges adjacent each corner of the shuttering member being engageable in said grooves or channels to locate a corner of the shuttering member upon the platform.  
30 The object of the present invention is to provide an improved and simplified form of  
35 the support member.

According to the invention, the support member comprises a flat plate having on its upper surface upstanding projections formed by providing slots extending inwardly from the perimeter of the plate and bending up partially severed portions of the plate to form the projections.

Each projection may be bent up so that it lies in a plane which is inclined upwardly and outwardly from the plane of the plate.

There may be two sets of opposed pairs of upstanding projections, these projections being formed by providing four slots extending inwardly from the perimeter of the plate and bending up the portions of the plate bounding each side of each slot.

Preferably, the support platform is made from a flat plate of square form initially, by providing four slots one extending diagonally inwards from each corner of the flat plate, the partially severed portion on each side of such slot being then bent upwardly to provide an upstanding projection of triangular form.

Conveniently, with an initially square plate, a right angled notch may be cut from each corner of the plate and the diagonally extending slot may extend inwardly from the inner corner of this notch.

The invention is illustrated in the accompanying drawing wherein,

Figure 1 is a plan view of a support member.

Figure 2 is a side view.

In the embodiment of the invention shown in the drawings, the platform of the support member and the upstanding projections, are produced from a flat plate 10 which is initially square and each corner of this plate has a square portion of relatively small area removed therefrom by cutting a right angled notch 11 in each corner of the plate. The dotted lines in the lower right corner of Figure 1 shows the condition of the plate prior to bending up the projections, and this is the same for each corner.

The plate 10 is further formed with four slots 12 each of which is cut so that it extends diagonally inwards towards the centre of the plate from the innermost corner of its asso-

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ciated right angled notch 11 and each such slot extends along the diagonal for a distance which is somewhat less than half the distance between the centre of the plate and the corner thereof.

The partially severed portion (13, 13) on each side of each slot 12 is then bent upwardly to form an upstanding projection 14 which is of truncated triangular form i.e. in the form of a triangle having its base secured to the plate and its apex cut off. Each such truncated projection is bent upwardly through an angle which is slightly less than 90° so that when viewed in side elevation, the plane of each projection 14 makes a small angle with the vertical and each projection is therefore inclined upwardly and in the outwards direction from the vertical axis passing through the centre of the plate.

The underside of the support member formed as above described, may have secured thereto, a short length of rod or tube 15 which may be of square cross-section and which forms a spigot for engaging in the upper end of a scaffolding prop or like vertical scaffolding member.

It will be observed from Figure 1 that the upstanding projections 14 collectively define two channels (extending N—S and E—W as seen in Figure 1) which extend across the surface of the plate and are mutually at right angles.

The manner of use of the support member above described, is dealt with in our co-pending application No. 21726/59 (Serial No. 905,409) from which it will be seen that four shuttering members can be engaged with such a support member, each shuttering member having one corner which engages over the projections 14, 14 at a corner of the support member.

The arrangement of the projections in upwardly and outwardly inclined planes, has the advantage that when the four shuttering members are engaged with the support member, the four corners of the shuttering members which rest upon the support member, are caused to lock tightly together, thus closing any gaps between the edges of the shuttering members

and the corners. The inclined arrangement of the projections provides a form of wedging action whereby the edges of the shuttering members slide down the inclined surfaces under the influence of gravity and the corners of the four shutters are forced tightly together.

**WHAT WE CLAIM IS:—**

1. Shuttering for casting concrete as claimed in Claim 1 of Application No. 8894/58 (Serial No. 905,408) wherein the support member comprises a flat plate having on its upper surface upstanding projections formed by providing slots extending inwardly from the perimeter of the plate and bending up partially severed portions of the plate to form the projections.
2. Shuttering according to Claim 1 wherein each projection is bent up so that it lies in a plane which is inclined upwardly and outwardly from the plane of the plate.
3. Shuttering according to Claim 2 wherein there are two sets of opposed pairs of upstanding projections which are formed by providing four slots extending inwardly from the perimeter of the plate and bending up the portions of the plate bounding each side of each slot.
4. Shuttering according to Claim 2 wherein the plate is initially of square form and is provided with four slots one extending diagonally inwards from each corner of the flat plate, the partially severed portions on each side of each such slot being then bent upwardly to provide an upstanding projection of triangular form.
5. Shuttering according to Claim 4 wherein initially a right angled notch is cut from each corner of the plate and the diagonally extending slot extends inwardly from the inner corner of this notch.
6. Shuttering for casting concrete substantially as described with reference to and as shown in the accompanying drawing.

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**PROVISIONAL SPECIFICATION**  
No. 21727 A.D. 1959

**Improvements relating to Shuttering for Casting Concrete and Supports therefor**

We, SCAFFOLDING (GREAT BRITAIN) LIMITED, a British Company of Scafco Works, Willow Lane, Mitcham, in the County of Surrey, do hereby declare this invention to be described in the following statement:—

This invention relates to shuttering used for constructing overhead concrete work, such as floors, roofs or beams and the invention concerns a modification of the invention forming

the subject of our prior application No. 8894/58 (Serial No. 905,408) in which there is claimed a support member comprising a head or platform, the underside of which is adapted for attachment to the upper end of a vertical scaffolding member, so as to position the platform in a substantially horizontal plane, and the upper side of said platform being formed or provided with a recess (or projection)

adapted to be engaged by a corresponding and co-operating projection (or recess) respectively on the underside of a shuttering member, so as to locate the shuttering member or pan on the platform against displacement in the horizontal plane.

The object of the present invention is to provide an improved and simplified form of the support platform and also to provide improvements in the construction of the shuttering member.

According to the present invention, the support platform comprises a flat plate having, on its upper surface, four upstanding projections which collectively define two channels or passages extending across the surface of the plate and mutually at right angles.

For example, the channels or passages may be defined by four projections formed by providing four slots extending inwardly from the perimeter of the plate and by bending up the partially severed portions of the plate to form four plate upstanding projections.

Preferably such plate will be square and the said slots will preferably extend inwardly one from each edge of the plate, but alternatively, the slots may extend inwardly from each pair of opposite edges of the plate. In either case the portions that are thus partially severed from the plate are bent up so as to form four rectangular upstanding flat projections.

The underside of such platform may have secured thereto a short length of rod or tube which forms a spigot for engaging in the upper end of a scaffolding prop, such rod or tube preferably being of non-circular cross section, e.g. square.

This form of support platform is adapted to be used in a shuttering system forming the subject of our co-pending application No. 21726/59 (Serial No. 905,409) of even date herewith and the particular formation of the projections has a particular advantage in connection with the use of the shuttering members and the extension pieces which are described in the aforesaid co-pending application.

In one embodiment according to the invention each platform is formed from a flat plate which, initially, is of square form and which has cut therein four straight slots, one slot being made to extend inwardly from each of the four edges of the plate at right angles thereto.

The said slots are spaced inwardly from the edges of the plate with which they are respectively parallel so as partially to sever each of the corners of the plate from the body of the plate. The partially severed corners are then bent up from the plate at a right angle thereto to form an upstanding flat, square or rectangular projection or lug, the line of the bend between the plate and each projection being at right angles to the slot partially severing the projection or lug from the plate.

Thus the finished plate has near each corner one of the said upstanding projections or lugs, each of these being respectively parallel to one edge of the plate.

In an alternative embodiment the plate may have the four slots arranged so that two extend inwardly from each of two opposite edges of the plate at right angles thereto. Considering such a plate, each pair of slots is disposed symmetrically on opposite sides of the centre-line of the plate and each slot extends inwardly for a suitable distance which may be of the order of quarter the width of the plate and then the metal between each slot and the adjoining corner edges of the plate is bent upwardly so as to form a flat projection or lug which is at right angles to the plane of the plate and when all four corner edges have been bent upwardly there are provided four flat lugs which are disposed in pairs in two parallel planes spaced equi-distance from the centre-line of the plate and these two planes define a channel extending between opposite sides of the plate.

A plate constructed according to either of the said embodiments is adapted for use with a shuttering member having an angle section frame carrying a wooden board and the profile of the angle section frame being as described particularly in our co-pending application of even date herewith.

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PROVISIONAL SPECIFICATION

No. 696 A.D. 1960

**Improvements relating to Shuttering for Casting Concrete and Supports therefor**

We, SCAFFOLDING (GREAT BRITAIN) LIMITED, a British Company of Scafco Works, Willow Lane, Mitcham, in the County of Surrey, do hereby declare this invention to be described in the following statement:—

This invention relates to shuttering used for constructing overhead concrete work, such as floors, roofs or beams.

In our prior application 8894/58 (Serial No. 905,408) there is claimed a support member for shuttering, or shuttering members comprising a head or platform, the underside of which is adapted for attachment to the upper end of a vertical scaffolding member so as to

position the platform in a substantially horizontal plane, and the upper side of said platform being formed or provided with a recess (or projection) adapted to be engaged by a corresponding and co-operating projection (or recess) respectively on the underside of a shuttering member so as to locate the shuttering member on the platform against displacement in the horizontal plane. 60

5 10 Our further prior application No. 21727/59 describes certain improved and simplified forms of support platforms and the present invention is particularly concerned with this kind of support platform. 65

15 The object of the invention is to provide an improved form of support platform. 70

In our prior application No. 21727/59 the support platform comprises a flat plate having on its upper surface, four upstanding projections which collectively define two channels or 75

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passages extending across the surface of the plate and mutually at right angles, and in certain preferred embodiments described in the aforesaid application the above mentioned channels or passages are defined by four projections formed by making four slots extending inwardly from the perimeter of the plate and bending up the partially severed portions of the plate to form four upstanding projections. 85

According to the present invention, the support platform comprises a flat plate and the two channels or passages extending mutually at right angles across the surface of the plate, are defined by upstanding projections formed by providing slots extending inwardly from the perimeter of the plate and bending up partially severed portions of the plate to form the projections, each projection being bent up so that it lies in a plane which is inclined upwardly and outwardly. 90

There may be two sets of opposed pairs of upstanding projections, these projections being formed by providing four slots extending inwardly from the perimeter of the plate and bending up the portions of the plate bounding each side of each slot. 95

Preferably, the support platform is made from a flat plate of square form initially, by providing four slots one extending diagonally inwardly from each corner of the flat plate, the partially severed portion on each side of each slot being then bent upwardly to provide an upstanding projection of triangular form. 100

Conveniently, with an initially square plate, a right angled notch may be cut from each corner of the plate and the diagonally extending slot may extend inwardly from the inner corner of this notch. 105

The arrangement of the projections in upwardly and outwardly inclined planes, has the advantage that when the four shuttering members are engaged with the support plate, the four corners of the shuttering members which rest upon the support plate, are caused to lock tightly together thus closing any gaps between the edges of the shuttering members and the corners. The inclined arrangement of the projections provides a form of wedging action whereby the edges of the shuttering members slide down the inclined surfaces under the influence of gravity and the corners of the four shuttering members are forced tightly together. 60

In one embodiment of support platform according to the invention, the platform and upstanding projections, are produced from a flat plate which is initially square and each corner of this plate has a square portion of relatively small area removed therefrom by cutting a right angled notch in each corner of the plate. 75

The plate is further formed with four slots each of which is cut so that it extends diagonally inwards towards the centre of the plate from the innermost corner of its associated right angled notch and each such slot extends along the diagonal for a distance which is somewhat less than half the distance between the centre of the plate and the corner thereof. 80

The partially severed portion on each side of each slot is then bent upwardly to form an upstanding projection which is of truncated triangular form i.e. in the form of a triangle having its base secured to the plate and its apex cut off. Each such truncated triangular projection is bent upwardly through an angle which is slightly less than  $90^\circ$  so that when viewed in side elevation, the plane of each projection makes a small angle with the vertical and each projection is therefore inclined upwardly and in the outwards direction from the vertical axis passing through the centre of the plate. 85

The underside of the platform formed as above described may have secured thereto, a short length of rod or tube which may be of square cross-section and which forms a spigot for engaging in the upper end of a scaffolding prop or like vertical scaffolding member. 90

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905410      COMPLETE SPECIFICATION  
1 SHEET      *This drawing is a reproduction of  
the Original on a reduced scale*

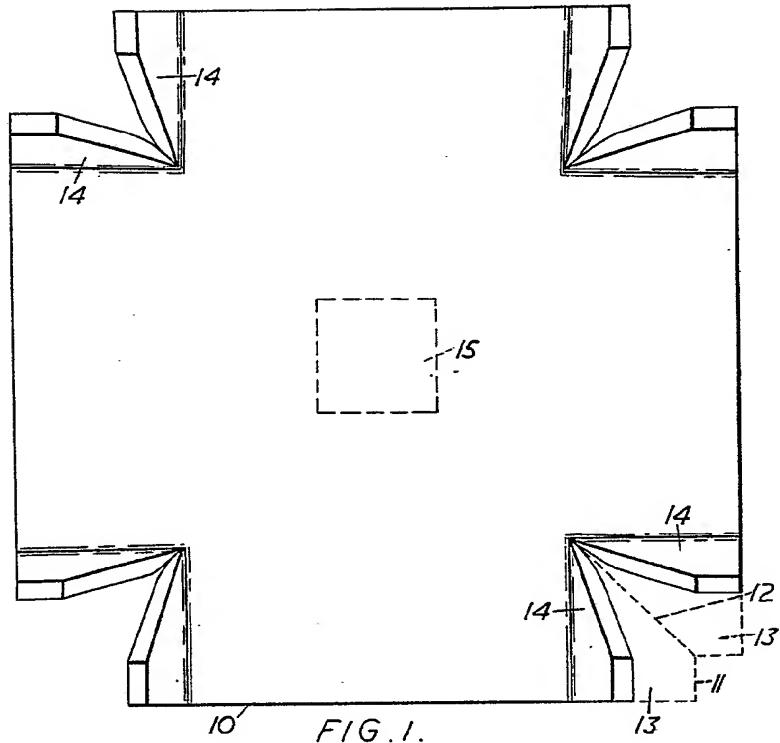


FIG. 1.

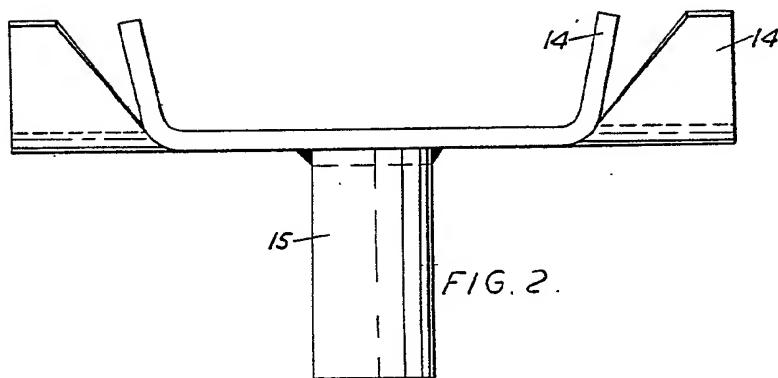


FIG. 2.